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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,580	11/15/2000	Domingo G. Garcia	TI-28900	3001
23494	7590	03/04/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			NGUYEN, DUNG X	
		ART UNIT	PAPER NUMBER	
		2631	6	
DATE MAILED: 03/04/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/713,580	GARCIA, DOMINGO G.	
	Examiner	Art Unit	
	Dung X Nguyen	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 February 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 - 7, and 11 - 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 11 - 15 is/are allowed.
- 6) Claim(s) 1 and 3 - 7 is/are rejected.
- 7) Claim(s) 2 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed on February 09, 2004 have been considered but are not persuasive and moot in view of the new ground(s) of rejection.

As the contrary to the applicant's arguments, we do not examine the patents based only on the purpose(s) of the reference(s). So, the applicant(s) should not expect the references having the same purposes of the applicant(s).

Claim Objections

2. **Claim 2 is objected** to because of the following informalities: in line 3, [a] before "plurality" must be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, and 5 – 6 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Uchiyama (US patent # 5,228,060).

Regarding claim 1, Uchiyama discloses (figure 1 and its description on column 4, line 16 to column 6, line 55):

- Units 6, 9 corresponding to a tracking buffer for tracking a plurality of coefficients for timing drift (column 4, lines 41 – 49 and column 5, lines 26 – 67);
- Centering the plurality of coefficients in the equalizer (element 5, column 5, line 67 to column 6, line 15);
- Filtering the signal with the plurality of coefficients through an equalizer (element 5, column 5, lines 26 – 35); and
- Updating the plurality of coefficients in the equalizer (element 5, column 1, lines 28 – 32 and column 5, lines 36 – 39).

Uchiyama differs from the instant claimed invention that it does not state that to update and to center the plurality of coefficients in the tracking buffer instead of the equalizer (5). However, Uchiyama discloses that the coefficients center and update in equalizer (5), and then store to buffers (elements 15, 9, and 10, column 6, lines 16 – 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to recognize Uchiyama to provide to update and to center the plurality of coefficients in the tracking buffer instead of the equalizer for a designed choice because storing the coefficients centered and updated in equalizer or in buffers has the same meaning.

Regarding claim 5, Uchiyama discloses (figure 1 and its description on column 4, line 16 to column 6, line 55):

- Equalizer (5) for processing signal;
- Buffers (elements 15, 9, and 10) for storing a plurality of equalizer coefficients to be applied to the equalizer 5 (column 5, line 26 to column 6, line 38);
- Buffer manager 8 for tracking the equalizer coefficients within the buffers (elements 15, 9, and 10, column 4, lines 44 – 49 and column 6, lines 16 – 55), and for shifting the coefficients such that the coefficients remain centered within the equalizer (column 5, line 67 to column 6, line 38).

Uchiyama differs from the instant claimed invention that it does not state that to shift the plurality of coefficients such that the coefficients remain centered in the tracking buffer instead

Art Unit: 2631

of the equalizer (5). However, Uchiyama discloses that the controller (8) stores coefficients updated or centered in equalizer (5) to buffers (elements 15, 9, and 10, column 6, lines 16 – 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Uchiyama to provide to shift the plurality of coefficients such that the coefficients to center in the buffers instead of the equalizer (5) for a designed choice because storing the coefficients centered and updated in equalizer or in buffers has the same meaning.

Regarding claim 6, Uchiyama further discloses (figure 1 and its description on column 4, line 16 to column 6, line 55):

- Buffers (elements 15, 9, and 10) for storing portions of signal and equalizer coefficients (column 6, lines 20 – 49).

5. **Claims 3 and 4 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Uchiyama (US patent # 5,228,060), further in view of Qureshi et al. (US patent # 4,004,226).

Regarding claim 3, Uchiyama differs from the instant claimed invention that it does not show the step of splitting the input signal $r(t)$ into an in-phase and a quadrature-phase signals. However, Uchiyama discloses that the QAM demodulator (3) of figure 1 demodulates the received signal (column 4, lines 29 - 31), as a QAM demodulator, it separates the signal into an in-phase (I) and a quadrature-phase (Q) signals, while Qureshi et al. discloses (figure 2) that the in-phase and quadrature-phase modulated signals (28 and 29) acting as a splitting step, thereby the needed components will be followed (column 3, lines 22 – 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Uchiyama and Qureshi et al. to provide QAM demodulator as a step of splitting and thereby to update and to center the plurality of coefficients in the tracking buffer instead of the equalizer as analyzed in claim 1 for malfunctions in which the modem hangs up can be prevented (column 3, lines 38 – 51 of Uchiyama).

Regarding claim 4, the limitation is analyzed in the same manner set forth as claim 3.

6. **Claim 7 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Uchiyama (US patent # 5,228,060), further in view of Grimwood et al. (US patent # 6,243,369 B1).

Regarding claim 7, Uchiyama differs from the instant claimed invention that it does not show that buffers (elements 15, 9, and 10) for pointing to the portion of signal and the equalizer coefficients. However, as memories, they have to point to whatever stored in them as in Grimwood et al. (see figure 8 and column 27, lines 5 – 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Uchiyama and Grimwood et al. to provide buffers (elements 15, 9, and 10) to point to the portion of signal and the equalizer coefficients for process the memory's functions.

Allowable Subject Matter

7. **Claim 2 is objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. **Claims 11 – 15 are allowed.** The following is a statement of reasons for the indication of allowable subject matter:

Regarding to the claim 11, the prior art of record fails to show or render obvious of a receiver, comprising:

An A/D converter for converting a received analog signal to digital samples;

An adaptive equalizer for continually updating filter coefficients;

A tracking buffer for storing the sequence of filter coefficients, which has a length longer than the length of the sequence of filter coefficients used by the adaptive equalizer; and substantially

Buffer management circuit for tracking movement, within the tracking buffer, of the position of those filter coefficients having the highest values, and for shifting the position of the sequence of filter coefficients within the tracking buffer, so that those filter coefficients having the highest values are in a central portion of the sequence.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Corrigan, III et al. (US patent # 6,697,345 B1) discloses a multi-transport mode radio communications having synchronous and asynchronous transport mode capability.

Garcia (US patent # 6,687,292 B1) discloses a timing phase acquisition method and its corresponding device for telecommunication systems.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (703) 305-4892. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Ghayour Mohammad H. can be reached on (703) 306-3034. The fax phone numbers for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

DXN

February 25, 2004

